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DISINCENTIVES TO AGRICULTURAL PRODUCTION IN DEVELOPING COUNTRIES: A POLICY SURVEY

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World grain production shortfalls caused by unfavorable weather, and depleted purchasing power caused by rising costs of imported oil have renewed public concern about the ability of less developed countries[1] (LDC's) to feed their people adequately. Some economists feel that the tight food supply-demand situation is likely to continue in the future. They argue that over the long run, even if weather conditions improve, increases in the population growth rate overshadow expected gains in productivity, given the current state of technology and institutional constraints facing producers in these countries.

To what extent are food-short nations aggravating their problem by government policies and programs that act as disincentives to agricultural production? To help answer this question the U.S. Department of Agriculture recently surveyed more than 50 countries for the purpose of identifying the type and degree of existing disincentives. These are not confined to LDC's, but are much more critical to their levels of food supply than are disincentives in developed countries. This paper describes the disincentives, but does not attempt to quantify the specific impacts of such policies on agricultural production.

Forty-six of the countries surveyed have policies that directly or indirectly discourage domestic production. Disincentives revealed by the survey include:

1. Controlling the selling price of the producers.
2. Controlling the retail price to the consumer.
3. Noncompetitive buying (procurement policy).
4. Export controls.
5. Export taxes.
6. Importing for sale at subsidized prices.
7. Exchange rate controls.
8. Restrictions on credit, land tenure, and farm size.
9. Restrictions on domestic movement of agricultural products, as from one district to another.

The impact of these policies on agricultural production is discussed below and a summary of the commodities affected by these policies within selected countries is given in an attached table.

It is commonly assumed that the objective of production is to maximize the producer's profit within the constraints of his technology, resource endowments, and final product demands. The consumer, in turn, demands products because they directly or indirectly satisfy some need or want.[2] In an exchange economy where the forces of supply and demand are free to interact, both sellers and buyers benefit from specialization in production and exchange. Whether in a barter economy or a highly advanced monetary economy, the free interaction of sellers and buyers results in a set of equilibrium prices, quantities, and trade flows. Given a crop failure, limited storage stocks, and a production time lag of several months, the burden of short-run adjustment falls upon market price and consumption. In other words, the interaction of supply and demand forces the price upward until it reaches a level that clears the market. The freely functioning price mechanism allocates the available supply among consumers according to ability to pay.

The impact of imposing price controls on agricultural production depends upon the extent to which the imposed price ceiling deviates from the equilibrium price level, other things being equal. Controls placed on prices below the equilibrium level discourage producers from planning future expansion and may drive marginal producers out of business. Price controls also discourage farmers from using more productive inputs such as improved seeds, fertilizers, irrigation, insecticides, and pesticides that are needed to increase production.

For example, Government controls on producer prices in Zaire has had detrimental effects on palm oil production. Palm oil production has been declining since 1968, in reaction to low administered prices. The 1974 output of 165,000 metric tons was 38,000 metric tons

[1] The term LDC is used loosely here. Some economists prefer the term "developing countries." As far as this report is concerned, the two terms are equivalent.

[2] "Products" are defined to include goods and services.

below that of 1968. Producers are very reluctant to invest in the expansion of their groves, since they know that 50 percent of the total output must be sold in the domestic market at an unprofitable price (at a loss).

Not too long ago, Greece's price ceilings on beef resulted in shortages and black markets.

In many cases the objective of price controls is to have a more equitable food distribution, given inadequate domestic supplies. Although improvement in food distribution is desirable and necessary for many countries, price control does not necessarily mean that on a per capita basis the countries will enjoy an improved level of consumption.

With the lack of foreign exchange reserves to import food, developing countries can meet the increasing demand for food only by stimulating domestic production. One way to accomplish this objective is to free production from the artificial constraints, such as price controls, that discourage farmers from making additional investments to increase production. Higher price signals transmitted from the market will raise producer expectations about the supplies that can be absorbed by the market at prices that he believes will bring a reasonable profit. The pursuit of profit helps assure adequate supply levels.

Some countries use price controls as a means of fighting inflation. But what is really needed is more production, not less. Given a stable demand, an increase in the supply would bring a decline in price.

Certain procurement policies and forms of noncompetitive buying are constraints that also lead to lower production. In many LDC's, the government is the sole buyer of the product. This has adverse effects on both producers and consumers. Governments use such practices to secure consumer supplies and as a source of revenue. While the producer is deprived of a higher, competitive price, the consumer ends up paying more for a smaller output, which results in a social welfare loss. In Thailand, for example, rice producers receive about one-fifth the world price for rice. It is estimated, based on long-run supply elasticity estimates, that Thailand can increase its annual rice output by 1 million metric tons by increasing the relative farm price of rice by 50 percent. This is quite substantial since Thailand's total rice exports in 1973 amounted to 0.9 million metric tons. However, one should not argue for procurement prices above the world price level since such a policy would in the long run lead to unnecessary surpluses and export subsidies.

Export controls and export taxes, in addition to being barriers to free trade, can result in the loss of potential export markets. Where substitute products or alternative supplies exist, the loss in exports is the greatest. An export tax increases the price of the exported commodity, thus reducing the quantity bought by foreign buyers. This, in turn, leads to a loss of foreign exchange needed to finance imports. In addition, reduced foreign demand influences producers' expectations about the future demand, and they grow less than they would otherwise.

In order to maintain the flow of foreign exchange to finance imports of necessary commodities and equipment, many countries put higher priorities on exports. For example, Argentina has long maintained a stable beef export market through taxes and exchange rate manipulation. As domestic beef prices go up, exports, which are more price elastic than domestic demand, start declining. This induces the Government to devalue explicitly or implicitly (reduce export duties or increase subsidies) to maintain the level of exports. The quantity adjustment is thus forced upon domestic consumption. Since domestic demand is rather price inelastic, the price adjustment required to clear the market is larger than the initial free-market price increase. At the new price level, further devaluation is needed to maintain the level of exports. This process continues until the new output from an increased herd reaches the market. In summary, exchange rate manipulation directed toward stabilizing Argentine beef exports results in instability of beef prices.[3] Such policy creates uncertainty to producers and complicates the process of resource allocation.

Brazil is another example where exchange rate manipulation has been a popular policy. In the early 1950's the Government overvalued its currency, believing that an inelastic foreign demand for Brazilian coffee would bring more revenue to the country. This policy had an adverse effect, however, on the exports of other products in which Brazil had a comparative advantage in the world market. By 1953, the Government had apparently recognized this problem and since then it has been following a system of multiple exchange rates.[4] The system of multiple exchange rates, as in the case of other forms of exchange rate manipulation, could introduce a tremendous amount of uncertainty that complicates farmers' decisions regarding new investment or resource allocation.

In an effort to control inflation and in order to provide the consumers with adequate supply of basic food commodities, some governments resort to import subsidization. This policy, which results in a lower price in the domestic market, discourages producers within the country from expanding. Improved seed varieties around which the green revolution was built require intensive use of fertilizers, irrigation, and pesticides. Unless domestic prices are high enough to compensate for the investment in such costly inputs, producers have

[3] Gustavo A. Nores: *"Quarterly Structure of the Argentine Beef Cattle Economy: A Short-Run Model 1960-1970."* Unpublished Ph.D. Thesis, Purdue University, June 1972, Chapter I.

[4] Ralph G. Lattimore: *"An Econometric Model of the Brazilian Beef Sector"*. Unpublished Ph.D. Thesis, Purdue University, August 1974. Chapter I.

no incentive to expand their production.

The effects of import subsidies are not confined to the production of grains but also extend to other agricultural commodities. For example, the subsidization of meat imports in Spain has depressed domestic livestock production. An alternative to the policy of import subsidization is to encourage domestic producers to expand their production by offering higher product prices that compensate for the added cost of using manufactured inputs needed for intensive production.

Restrictions imposed on farm size, land tenure, and credit to farmers constitute serious barriers to the expansion of agricultural production in many LDC's. Despite the improvement in land distribution brought about by land reform, many LDC's have experienced lower output. While land is an important factor of production, other factors must be combined with land to maintain or increase the level of production. At the early stages of adjustment in the agricultural sector, following land reform, the new owners are usually farm workers with limited experience in farm management and most likely have little or no capital to cover the variable costs of production. Poor management and lack of capital result in an inefficient allocation of resources that may lead to a decline in output until these deficiencies are corrected.

Restrictions on land tenure that limit farm size discourage farmers from investing in highly productive inputs and cause a loss of size economies. In the Dominican Republic, the land tenure law that limits riceland to 80 acres has been one reason that the country has needed to import rice over the past several years. The effect of this policy has been further amplified by price controls where the farmer receives a low price for his rice.

Eliminating its policy of requiring cooperative farming organizations in 1969, Tunisia proved that private enterprise is more efficient in allocation of resources. Tunisia's index of per capita agricultural production increased from 76 in 1969 to 117 in 1973 (1961-65 = 100).[5]

Rural credit policies that restrict credit to small farmers have limited the expansion of agricultural production in many LDC's. For example, the Government of Indonesia (GOI), in order to compensate rice producers for low rice prices, offers them subsidized credit. However, since the small farmers are viewed as high risk borrowers by the banking system, only the larger farmers benefit from subsidized financing that facilitates the adoption of new production techniques. Therefore, it is only the larger farmers who have the negative impact of low prices partially neutralized through GOI subsidized credit programs. This results in an inefficient resource allocation for a large number of small farmers who need liquidity to improve their level of production.

Restrictions on movement of agricultural products from surplus districts to deficit districts within a country discourage farmers in the surplus areas from producing more. Perhaps the existence of such restrictions in India amplified the impact of food shortages following the last summer's drought and floods, where some States such as West Bengal were hit harder than others. Another example is Indonesia where interisland shipments of rice are prohibited except under Government auspices.

Policies that tend to restrict agricultural production are not unique to developing countries. As recently as 1973, the U.S. Government payment for feedgrain set-aside acreage totaled $1.17 billion, and 9.4 million acres of land were withheld from production.[6] Over the past two decades, U.S. agriculture has been the subject of various supply management programs. Supply management has generally had as its objective supply reduction rather than supply expansion. Current programs that act as restrictions on production in the United States are marketing quotas and acreage allotments for extra-long-staple cotton, peanuts, rice, and most types of tobacco. Also, recent environmental legislation calls attention to social trade-offs between what is conceived of as being socially desirable environment and higher production.

The discussion of the effects of disincentive policies on agricultural production in different countries included in this survey does not explicitly deal with interdependencies among the commodities. It is recognized that a disincentive for one commodity may prove to be an incentive for another. While it is beyond the scope of this analysis to present a quantitative evaluation of the net effect of various policies in different countries, a general indication of each country's need to expand its agricultural output can be grasped by examining Table 1. For most of the countries included in this study and based on a long trend (1952-1972), the rate of growth in domestic demand for food exceeds that for food production.

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[5] The *Agricultural Situation in Africa and West Asia*, ERS-Foreign 363, USDA, Washington, D.C. June 1974.

[6] Commodity Fact Sheet, April 1974, ASCS, USDA

Table 1.--Population, Food Supply and Domestic Demand for Food in Selected Countries: Rate of Growth as Percent Per Year

Country	Growth Rate 1/ Population	Food Production	Domestic Demand for Food	Country	Growth Rate 1/ Population	Food Production	Domestic Demand for Food
Mexico	3.4	5.3	4.3	Tunisia	2.9	0.8	4.3
Dominican Republic	3.3	2.2	3.6	Nigeria	2.4	2.0	3.1
Costa Rica	3.8	5.4	4.8	Senegal	2.2	3.3	1.2
Guatemala	3.0	4.1	4.2	Sierra Leone	2.0	2.4	3.9
Honduras	3.3	4.0	4.2	Zaire	2.0	0.2	2.3
Nicaragua	3.0	4.9	3.9				
Panama	3.2	4.3	4.8	Bangladesh	3.5	1.6	---
El Salvador	3.0	3.6	4.1	Sri Lanka	2.5	3.6	3.1
				India	2.1	2.4	3.0
Argentina	1.7	1.8	2.0	Pakistan	3.0	3.0	4.2
Bolivia	2.3	5.0	2.7	Burma	2.2	2.4	3.3
Brazil	3.0	4.4	4.0	Indonesia	2.5	2.0	2.6
Chile	2.5	2.2	3.3	Malaysia (West.)	3.0	5.2	4.3
Colombia	3.3	3.1	3.9	Philippines	3.2	3.2	4.2
Ecuador	3.3	5.4	4.0	Thailand	3.1	5.3	4.6
Paraguay	3.1	2.6	3.4				
Peru	2.9	2.9	3.9	Egypt	2.6	3.4	3.8
Uruguay	1.3	.8	1.2	Greece	0.8	4.0	2.3
Venezuela	3.5	6.1	4.0	Iran	2.8	3.3	6.4
				Jordan	3.2	1.8	6.6
Angola	1.8	2.7	3.0	Syria	3.0	1.8	4.6
Ghana	2.9	3.9	3.2	Turkey	2.7	3.0	3.8
Ivory Coast	2.2	4.9	2.6	Spain	0.9	3.4	3.0
Kenya	3.0	2.6	4.6				
Liberia	1.5	1.1	1.8				
Morocco	3.0	2.8	3.3	United States	1.5	2.0	1.6

1/ Growth rates are based on an exponential trend 1952-72.

Source: Monthly Bul. of Ag. Econ. & Stat. 9 Vol. 23, Sept. 1974. FAO, Rome.

APPENDIX
DISINCENTIVES TO AGRICULTURAL PRODUCTION BY COMMODITY AND COUNTRY

Country and commodity	Disincentives to agricultural production									Remarks
	Controls on producer prices	Controls on consumer prices	Non-competitive buying	Export control	Export taxes	Import subsidies	Exchange rate controls	Restrictions on credit & land tenure	Restrictions on movement of agri. products	
MEXICO										
Sugar	X	X		X						
Livestock				X	X			X	X	
Other foodstuffs		X		X	X				X	
DOMINICAN REPUBLIC										
Rice	X	X		X		X		X	X	
Beef	X	X		X	X					
Sugar		X			X					
Corn	X	X		X						
Dairy	X	X								
TRINIDAD & TOBAGO										
Broilers	X	X								
Rice		X	X							
COSTA RICA										
Rice	X	X	X		X		X			
Beans	X	X	X		X	X	X			
Beef	X	X		X	X		X			
Sugar	X	X	X		X		X			
Dairy	X	X								
Bananas					X		X			
Coffee	X	X	X		X		X			
Corn	X	X								
GUATEMALA										
Meat		X								
Sugar		X								
Cotton	X									
Milk	X	X								
BELIZE										
Sugar	X	X			X			X		Disincentives are substantial. Price controls created shortages.
Beef	X	X						X	X	
Most foodstuffs	X	X						X		
HONDURAS										
Bananas					X					
Sugar	X	X	X							
Milk	X	X								
Cattle								X		

X denotes the existence of disincentives for the listed commodity or group of commodities.

APPENDIX

DISINCENTIVES TO AGRICULTURAL PRODUCTION BY COMMODITY AND COUNTRY—Continued

Country and commodity	Disincentives to agricultural production									Remarks
	Controls on producer prices	Controls on consumer prices	Non-competitive buying	Export control	Export taxes	Import subsidies	Exchange rate controls	Restrictions on credit & land tenure	Restrictions on movement of agri. products	
NICARAGUA										
Milk		X								
Cotton, Coffee, Tobacco					X			X		
Bananas, Rice, Sugar					X					
Hides, Cattle, Beef					X					
PANAMA										
Beef	X	X		X						
Other consumer items	X	X	X			X				
EL SALVADOR										
Meat				X						
Milk	X	X								
Grains	X	X		X						
Sugar			X							
Other foodstuffs	X	X	X							
ARGENTINA										
Beef	X	X			X		X			Multitiered exchange rate.
Major grains	X	X		X	X		X			
Sunflower seeds	X		X							
Oilseed products				X	X		X			Export of oilseeds is prohibited.
Other commodities							X			All agri. commodities are subject to exchange rate control.
Wool							X			
BOLIVIA										
Cotton					X					
Many food products	X	X	X						X	

APPENDIX

DISINCENTIVES TO AGRICULTURAL PRODUCTION BY COMMODITY AND COUNTRY–Continued

Country and commodity	Disincentives to agricultural production									Remarks
	Controls on producer prices	Controls on consumer prices	Non-competitive buying	Export control	Export taxes	Import subsidies	Exchange rate controls	Restrictions on credit & land tenure	Restrictions on movement of agri. products	
BRAZIL										
Beef	X	X		X						Restricted slaughter off-season.
Milk	X	X								
Soybean oil				X						Export prohibited.
Peanuts (excl. HPS)				X						Export prohibited.
HPS peanuts				X						
Peanut oil				X						
Cotton				*						MEP - world price.
Frozen orange juice concentrate				*						MEP above world price.
Sugar				X	*					Taxes are used to promote production and marketing.
Cocoa					*					
CHILE										
Wheat & wheat products	X	X	X	X		X	X	X		No farms over 80 irrigated acres or equivalent.
Sugarbeets	X	X	X	X		X	X	X		
Vegetable oil		X	X	X			X	X		
Beef							X	X		
Milk & milk products	X	X					X	X		
Rice	X	X					X	X		
COLOMBIA										
Sugar		X		X						All imports/exports have to be licensed.
Corn & foodgrains		X	X	X		X	X	X		
Soybeans		X	X	X		X	X			
Coffee	X		X	X	X		X			
Wheat		X				X	X			
Cotton				X		X	X			
Palm oil		X	X	X			X	X		
ECUADOR										
Coffee, cocoa					X					
Sugar				X	X					
Bananas					X					
Most basic foods		X								
Milk	X									
PARAGUAY										
Beef	X	X		X						
Soybeans	X				X					
Wheat	X									
Sugarcane	X									

*Not a disincentive at the present time.

APPENDIX
–DISINCENTIVES TO AGRICULTURAL PRODUCTION BY COMMODITY AND COUNTRY–Continued

Country and commodity	Disincentives to agricultural production									Remarks
	Controls on producer prices	Controls on consumer prices	Non-competitive buying	Export control	Export taxes	Import subsidies	Exchange rate controls	Restrictions on credit & land tenure	Restrictions on movement of agri. products	
PERU										
Livestock					X			X		Agrarian reform had its effect on Peru's agriculture. Restriction on movement of agricultural products applies to many commodities.
Cotton, wool				X	X			X		
Coffee, potatoes, beans	X	X	X							
Wheat, rice	X	X	X	X		X				
Sugar, tobacco	X	X	X	X						
Oilseeds & feedgrains	X	X	X			X				Indirect subsidies for wheat only. Non-competitive buying applies to tobacco only.
Meat, milk	X	X	X							
Fish meal & oil			X	X						
Dairy prod. & veg. oils						X				
URUGUAY										
Livestock	X				X		X		X	
Wool	X				X		X			
Grains	X				X		X			
Oilseeds	X				X		X			
Milk	X	X								
Sugarcane & beets	X									
Wheat			X							
VENEZUELA										
Sugar		X		*						Controls on consumer prices are offset by minimum producer prices. On the average, agricultural production is not affected by such policies.
Tobacco		X								
Rice		X		*						
Feedgrains		X				*				
ANGOLA										
Coffee					X					
GHANA										
Cocoa	X		X					X		
Seed cotton	X		X					X		
IVORY COAST										
Coffee	X		X							
Cocoa	X		X							

*Not a disincentive at the present time.

APPENDIX
DISINCENTIVES TO AGRICULTURAL PRODUCTION BY COMMODITY AND COUNTRY–Continued

Country and commodity	Disincentives to agricultural production									Remarks
	Controls on producer prices	Controls on consumer prices	Non-competitive buying	Export control	Export taxes	Import subsidies	Exchange rate controls	Restrictions on credit & land tenure	Restrictions on movement of agri. products	
KENYA										
Wheat	X	X								
Corn	X	X								Large scale farming is discouraged.
Sugar	X	X								
Rice	X	X								
LIBERIA										
Many commodities	X	X	X							
MOROCCO										
Oranges					X					Expropriated land from foreign owners.
Wheat products		X				X				
Other staple foods	X	X						X		
NIGERIA										
Cocoa	*		X					X		Farmers' price for cocoa is highest in West Africa.
Seed cotton	X		X					X		
SENEGAL										
Peanuts	X		X							
SIERRA LEONE										
Some commodities	X		X							
ZAIRE										
Palm oil	X	X								
Coffee	X	X	X		X					Two-tier exchange rate.
Tobacco	X	X	X		X					
Corn	X		X							
BANGLADESH										
Wheat				X		X				Effect of import subsidies is marginal at present prices.
Rice				X		X				
Edible oils				X						
SRI LANKA										
Rice						X				

*Not a disincentive at the present time.

–DISINCENTIVES TO AGRICULTURAL PRODUCTION BY COMMODITY AND COUNTRY–Continued

Country and commodity	Disincentives to agricultural production									Remarks
	Controls on producer prices	Controls on consumer prices	Non-competitive buying	Export control	Export taxes	Import subsidies	Exchange rate controls	Restrictions on credit & land tenure	Restrictions on movement of agri. products	
INDIA										
Jute				X	X		X			
Cereals				X			X	X		
Rice	X	X		X			X	X	X	
Wheat	X	X		X			X	X	X	
Cotton				X			X			
PAKISTAN										
Wheat, flour	X	X		X		X		X	X	Wheat is heavily subsidized. Wheat and veg. oil exports are banned. Interdistrict & interprovincial restrictions on movement of agri. products are imposed from time to time, particularly after harvest.
Vegetalbe oil	X			X		X		X		
Seed cotton				X					X	
Rice			X					X	X	
Raw cotton					X					
BURMA										
Rice	X		X	X						
INDONESIA										
Rice	X	X	X			X		X	X	
Sugar								X		
MALAYSIA										
Palm oil					X					
Rice	X	X								
PHILIPPINES										
Sugar	X	X	X	X	X					
Rice	X	X		X		X				
Desiccated coconuts					X					
Copra				X	X					
Coconut oil		X			X					
THAILAND										
Rice		X	X	X	X					
Sugar		X		X	X					
EGYPT										
Cotton	X		X					X	X	
Rice	X		X					X	X	

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DISINCENTIVES TO AGRICULTURAL PRODUCTION BY COMMODITY AND COUNTRY–Continued

Country and commodity	Disincentives to agricultural production									Remarks
	Controls on producer prices	Controls on consumer prices	Non-competitive buying	Export control	Export taxes	Import subsidies	Exchange rate controls	Restrictions on credit & land tenure	Restrictions on movement of agri. products	
GREECE										
Cottonseed cake	X			X						
Cottonseed oil	X	X		X						
Cheese				X						Soybean oil competes with olive oil. Sugar prices are usually fixed above the world price level but now they are lower.
Wheat, bread		X		X		X				
Feedgrains, meat, eggs				X						
Milk	X	X								
Corn, soybean oil						X				
Olive oil	X	X		X						
Sugar	X	X	X	X		X		X		
IRAN										
Wheat		X				X		X		
Rice		X				X				
Oilseeds & veg. oil		X				X				
Livestock, meat & milk		X				X		X		
JORDAN										
Wheat flour		X				X				
SYRIA										
Seed cotton	X		X	X				X		
Wheat and barley	X		X						X	
TURKEY										
Wheat	X	X		X		X		X	X	
Cotton										Overall policy is ineffecient.
Tobacco										
Livestock	X	X		X				X	X	
SPAIN										
Dairy	X	X				X				
Olive oil	X	X		X	X					
Meat and poultry	X	X				X				
Sugarbeets	X	X				X				